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A New Species of *Cyrtopeltis* from Coastal Vegetation in the Hawaiian Islands (Heteroptera: Miridae: Dicyphinae)[1]

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ABSTRACT: A new species, *Cyrtopeltis kahakai* Asquith, is described from the Hawaiian Islands. This species is specific to the strand plant *Scaevola sericea* (Vahl).

WITH ENDEMIC SPECIES in at least 11 genera, the Hawaiian Islands have a rich and largely undescribed mirid fauna. The only speciose genus to have received taxonomic attention is *Cyrtopeltis* Fieber (Dicyphinae), with eight endemic species. Kirkaldy (1902) first recognized *Cyrtopeltis* in Hawai'i when he described *C. hawaiiensis* from Maui, and later Perkins (1911) added *C. confusa* from O'ahu. The Hawaiian *Cyrtopeltis* were then reviewed and new species added by both Carvalho and Usinger (1960) and Gagné (1968). It attests to the remarkable diversity of the Hawaiian fauna that, despite two revisions by resident taxonomists, we still lack a complete inventory of all species. In this paper, I described a new species of *Cyrtopeltis* from coastal areas of Hawai'i.

Cyrtopeltis kahakai Asquith, n. sp.
Figures 1–3

DIAGNOSIS: This is the smallest species of *Cyrtopeltis* in Hawai'i, and can be distinguished from all others by its total length of < 3.0 mm. It is similar to *C. sidae* Gagné and *C. terminalis* Gagné in that these species also have translucent, yellow coloration and pale setae. Because of its small size, *C. kahakai* keys to *C. sidae* in the most recent key to Hawaiian *Cyrtopeltis* (Gagné 1968). It differs from *C. sidae* in having the anterior arm of the genital capsule process larger and more strongly curved ventrally, the posterior process unlobed, and *C. kahakai* lacks the large tooth on the right dorsal margin of the genital capsule. In addition, the rostrum reaches only the mesocoxae in *C. kahakai*, and in *C. sidae* the rostrum reaches the metacoxae.

DESCRIPTION: Male: Macropterous (Figure 1); small species, length 2.28–2.54 mm. Head round; eyes small, not reaching buccula ventrally, separated from pronotal collar by width of antennal segment II; occiput not constricted; tylus sloping anteriorly, not strictly vertical. All antennal segments cylindrical, AII sightly enlarged distally; AI widest, distal segments progressively narrower; lengths: AI 0.16–0.19 mm; AII 0.48–0.59 mm; AIII 0.43–0.54 mm; AIV 0.30–0.32 mm. Rostrum reaching mesocoxae. Pronotum trapezoidal, length 0.36–0.37 mm, width 0.63–0.68 mm; lateral margins nearly straight, posterior margin convex; anterior lobe laterally convex, posterior lobe flat; calli not elevated, only weakly defined by slight depression posteriorly. Hemelytra with sides weakly arcuate laterally. Entire body surface and all appendages translucent yellow; antennae, rostrum, and ventral surface of head pale yellow; eyes black; apex of rostrum and tarsi occasionally fuscous; spines and spinules on tibiae black. Surface of head, pronotum, and hemelytra shining. Vestiture on head and pronotal collar erect, pale; pronotum and hemelytra with inclined, pale, golden setae. Male genitalia: Posteroventral surface of genital capsule weakly and broadly curved dorsally (Figure 2). Process on ventral margin of genital opening bifurcate; posterior arm short, thick, straight; anterior arm sharply bent posteroventrally (Figure 3).

Female: Macropterous; slightly larger than male, length 2.5–2.7 mm. Antennal segment

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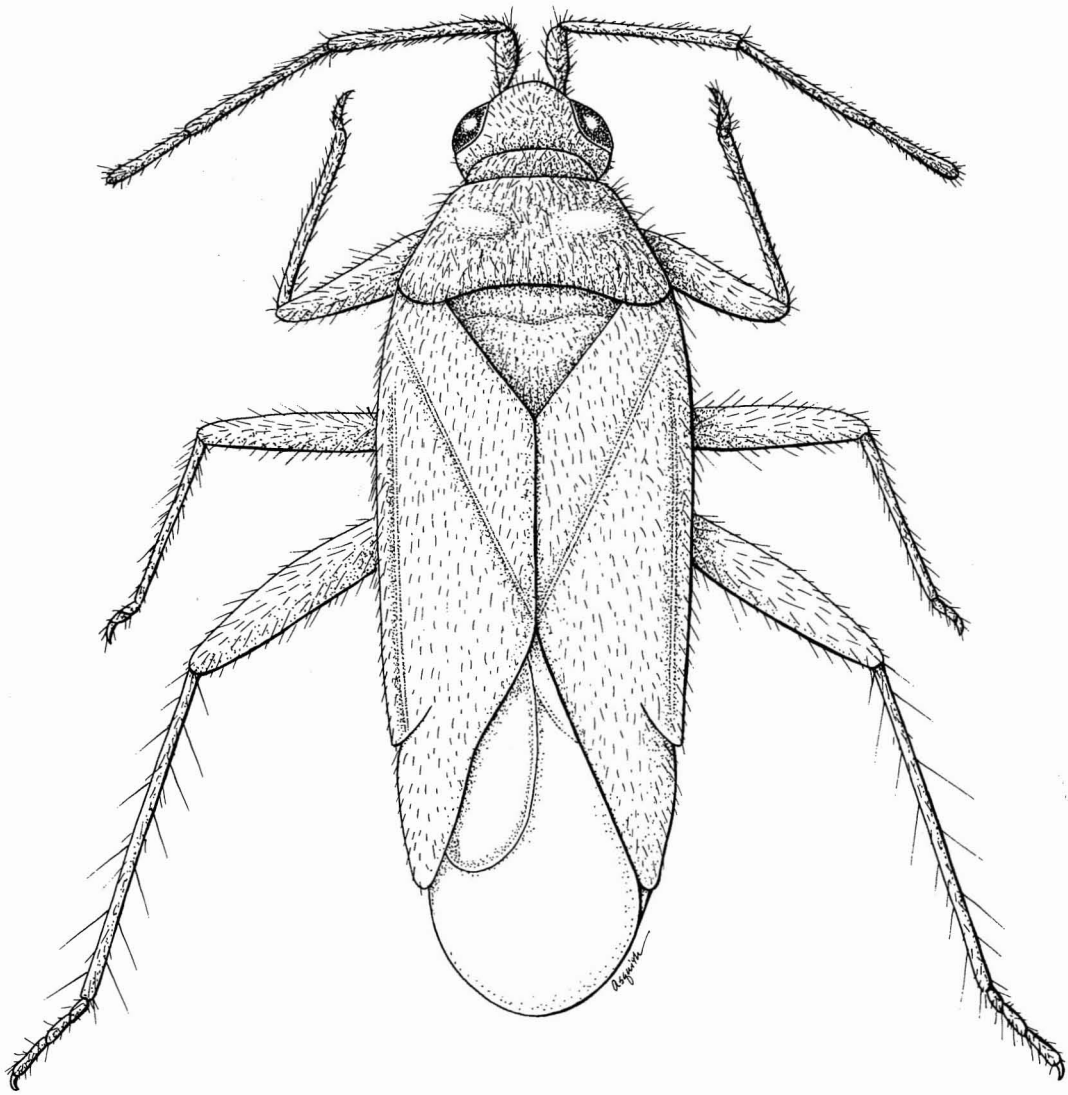


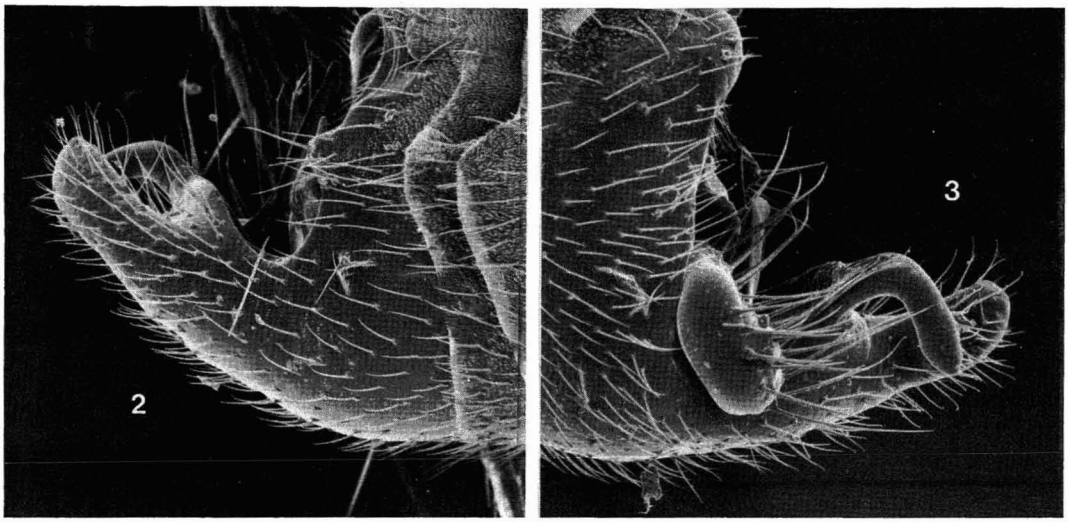
FIGURE 1. *Cyrtopeltis kahakai*, dorsal habitus of male.

II shorter than that of male, length 0.45–0.5 mm. Pronotum broader, width 0.66–0.73 mm; more divergent posteriorly and more laterally convex.

ETYMOLOGY: Name taken from the Hawaiian term *kahakai*, meaning "on the seashore."

TYPE MATERIAL: Holotype: Male, Hawaiian Islands, Kaua'i, Moloa'a Bay, 8-V-1991, A. Asquith, ex *Scaevola sericea* (Vahl); deposited in the B. P. Bishop Museum, Honolulu. Paratypes: 28 males, 28 females: same data as holotype; deposited in the B. P. Bishop Museum.

ADDITIONAL MATERIAL EXAMINED: Kaua'i: 4 males, 6 females, Keālia Beach, 22-V-1991, A. Asquith, ex *Scaevola sericea* (University of Hawaii, Kauai Research Station); 2 males, 2 females, Wailua River mouth, 11-V-1991, A.



FIGURES 2–3. *Cyrtopeltis kahakai*, male genital capsule: 2, right lateral view; 3, left lateral view.

Asquith (University of Hawaii, Kauai Research Station); Kalalau Valley beach, 4-X-1991, A. Asquith, ex *Scaevola sericea* (University of Hawaii, Kauai Research Station). Moloka'i: 6 males, 8 females, Mo'omomi Dunes, 22-VI-1991, J. W. Beardsley coll., ex *Scaevola sericea* (University of Hawaii Insect Collection).

This species is restricted to the strand plant *Scaevola sericea* Vahl (Goodeniaceae). Although its host plant extends inland for at least 300 m from the shore, and occasionally farther on cliff faces, *C. kahakai* apparently has a narrower distribution, as I have not found it more than a few meters above the high-water mark. Nymphs and adults are usually found deep among silky hairs in the leaf axils or within the inrolled leaf margins and are not easily dislodged, thus it is not taken by beating or sweeping. In the laboratory I have observed nymphs and adults of *C. kahakai* feeding on both *Scaevola* leaves and dead conspecifics. I have made similar observations of *C. hawaiiensis* Kirkaldy, which suggests that the other Hawaiian species, like most dicyphines, will feed on both plant and animal tissue (Cassis 1984).

Although at present *C. kahakai* is known only from Kaua'i and Moloka'i, I have collected nymphs of what is probably this species from *Scaevola* at Ka'ena Point on O'ahu. All other species of Hawaiian *Cyrtopeltis*, except *C. hawaiiensis* Kirkaldy (known from Maui and Moloka'i), are restricted to a single island, making *C. kahakai* the only widespread species in the archipelago.

As noted by Carvalho and Usinger (1960) and Gagné (1968), the Hawaiian *Cyrtopeltis* are host plant–specific and do not occur on related plants. For example, the morphological similarity between *C. kahakai* and *C. sidae* probably indicates close phylogenetic affinity, yet their host plants belong to different families (Goodeniaceae and Malvaceae, respectively). This should not be surprising, because the Dicyphinae in general occur on plants with villous pubescence or those with glandular trichomes, an ecological rather than taxonomic determinate (Cassis 1984). Host plants of the Hawaiian *Cyrtopeltis* also follow this pattern in having either glandular (*Sida*, *Dubautia menziesii* (A. Gray) D. Keck, *Dubautia platyphylla* (A. Gray) D. Keck, *Lysimachia*) or silky hairs (*Cyrtandra cordifolia* Gaud., *Phyllostegia*, *Scaevola sericea* Vahl).

The recognized diversity of both the named and undescribed Hawaiian entomofauna makes the discovery of yet another species not

unexpected. However, over 80% of the land area of Hawai'i is now in cattle pasture, plantation, or residences, with most lowland plant communities either eliminated or existing only as remnants. Likewise, conventional wisdom among many Hawaiian entomologists is that below 600 m elevation, there are few native insects remaining. As an ironic illustration, a 1990 insect survey of the type locality, Moloa'a, failed to discover *C. kahakai* (Asquith and Messing 1993), and the type series was collected from a plant growing virtually on the doorstep of a home. The presence of undescribed, endemic species such as *C. kahakai* in agricultural and residential areas of Hawai'i calls for immediate attention from both taxonomists and conservationists.

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